

Application No. 10/525,752
Amendment dated May 12, 2006
Reply to Office Action of January 17, 2006

Docket No.: 12810-00019-US

AMENDMENTS TO THE CLAIMS

1. (currently amended) A process for preparing essentially uncrosslinked hyperbranched, water-soluble or water-dispersible polyesters by reacting
 - at least one dicarboxylic acid or a dicarboxylic acid derivative (A) with
 - at least one polyether polyol (B) having n OH groups, where n is ≥ 3 , and
 - at least one saturated monocarboxylic acid, or at least one monofunctional alcohol as a chain stopper (S)at from 40°C to 160°C in the presence of an esterification catalyst, where the components (A) and (B) are used in such amounts that the molar ratio of OH groups to COOH groups is from 2 : 1 to 1 : 2.
2. (original) A process as claimed in claim 1, wherein n is 3, 4, 5 or 6.
3. (original) A process as claimed in claim 1, wherein n is 3 or 4.
4. (previously presented) A process as claimed in claim 1, wherein the molar ratio of OH groups to COOH groups is from 1.8 : 1 to 1 : 1.8.
5. (previously presented) A process as claimed in claim 1, wherein the molar ratio of OH groups to COOH groups is from 1.5 : 1 to 1 : 1.5.
6. (previously presented) A process as claimed in claim 1, wherein the reaction is carried out under reduced pressure.
7. (original) A process as claimed in claim 6, wherein the pressure is less than 500 mbar.

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8. (previously presented) A process as claimed in claim 1, wherein the polyether polyol having at least 3 OH groups is obtainable by ethoxylation and/or propoxylation of a molecule having at least 3 acidic H atoms.
9. (original) A process as claimed in claim 8, wherein an ethoxylation is carried out.
10. (previously presented) A process as claimed in claim 1, wherein a diol is additionally used as chain extender (V) in an amount of not more than 40 mol% based on the amount of polyether polyols used.
11. (original) A process as claimed in claim 10, wherein the amount of the chain extender (V) is not more than 20 mol%.
12. (currently amended) A process as claimed in claim 1, wherein the saturated[[a]] monofunctional carboxylic acid or the [[a]] monofunctional alcohol is additionally used as chain stopper (S) in an amount of not more than 10 mol% based on the amount of polyether polyols (B) or dicarboxylic acids (A) used.
13. (original) A process as claimed in claim 12, wherein the amount of the chain stopper (S) is not more than 5 mol%.
14. (previously presented) A process as claimed in claim 1, wherein the hyperbranched, water-soluble or water-dispersible polyester obtained is reacted in an additional process step with a suitable functionalization reagent (F) which can react with the OH and/or COOH end groups of the polyester.
15. (original) A process as claimed in claim 14, wherein the functionalization reagent (F) comprises one or more compounds selected from the group consisting of aliphatic and

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aromatic monocarboxylic acids and their derivatives, aliphatic and aromatic unsaturated monocarboxylic acids and their derivatives, aliphatic and aromatic monoalcohols, aliphatic and aromatic unsaturated monoalcohols, aliphatic and aromatic monoamines, aliphatic and aromatic unsaturated monoamines, aromatic and aliphatic monoisocyanates, aliphatic and aromatic unsaturated monoisocyanates, compounds containing carbodiimide groups and compounds containing epoxide groups.

16. (previously presented) A process as claimed in claim 1, wherein the esterification catalyst is an enzyme and the polymerization is carried out at from 40°C to 120°C in the presence of a solvent.
17. (original) A process as claimed in claim 16, wherein the polymerization is carried out at from 50°C to 80°C.
18. (previously presented) A process as claimed in claim 16, wherein the enzyme is a lipase or an esterase.
19. (original) A process as claimed in claim 18, wherein the enzyme is *Candida antarctica* lipase B.
20. (previously presented) A process as claimed in claim 16, wherein the enzyme is used in immobilized form.
21. (previously presented) A process as claimed in claim 1, wherein the esterification catalyst is an acidic inorganic, organometallic or organic catalyst.
22. (original) A process as claimed in claim 21, wherein the reaction is carried out at from 60°C to 160°C.

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23. (original) A process as claimed in claim 22, wherein the reaction is carried out at from 80°C to 150°C.
24. (previously presented) A process as claimed in claim 21, wherein the reaction is carried out at a pressure of not more than 100 mbar.
25. (previously presented) A water-soluble or water-dispersible, hyperbranched polyester obtainable by a process as claimed in claim 1.
26. (previously presented) A water-soluble or water-dispersible, hyperbranched polyester which has a hydroxyl number of 50 – 1000 mg KOH/g, an acid number of 0 – 200 mg KOH/g, a number average molecular weight M_n of 300 – 15 000 g/mol and a polydispersity M_w / M_n of 1.1 - 50 and is obtainable by a process as claimed in claim 1.
27. (original) A water-soluble or water-dispersible, hyperbranched polyester as claimed in claim 26 which has a hydroxyl number of 100 – 800 mg KOH/g, an acid number of 1 – 100 mg KOH/g, a number average molecular weight M_n of 500 – 8000 g/mol and a polydispersity M_w / M_n of 1.2 – 20.
28. (canceled)
29. (canceled)
30. (new) A method for preparing a polyaddition or a polycondensation polymer comprising synthesizing the polyaddition or the polycondensation polymer with the water-soluble or water dispersable, hyperbranched polyester as claimed in claim 25.

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31. (new) A method for producing a printing ink, an adhesive, a coating, a paint or a varnish comprising adding the water-soluble or water-dispersable, hyperbranched polyester as claimed in claim 25 to a printing ink formulation, an adhesive formulation, a coating formulation, a paint formulation or a varnish formulation.

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DISCUSSION OF THE AMENDMENTS

The specification has been amended to reflect that the listing of compounds are diols and not diolefins. In addition, the specification was amended to correct an obvious error in the application number of a cited foreign reference.

Claims 1 and 12 are currently amended.

Claims 2, 3, 7, 9, 11, 13, 15, 17, 19, 22, 23 and 27 are original.

Claims 4-6, 8, 10, 14, 16, 18, 20, 21 and 24-26 were previously presented.

Claims 28 and 29 are canceled without prejudice or disclaimer.

Claim 30 and 31 are new.

The amendments to claims 1 and 12 are supported on page 7, line 41 to page 8, line 20 of the specification.

New claims 30 and 31 are supported by claims 28 and 29 as originally presented.

No new matter has been added by the amendments.